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CIRSIUM LONGISTYLUM PROJECT: SUMMARY REPORT
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INTRODUCTION

An investigation to determine chromosome numbers for populations of *Cirsium longistylum*, populations of putative hybrids and of a reference population of *Cirsium hookerianum* was undertaken as per MT HER Contract Number 0607090. Field collection of meiotic material was undertaken on 1 July 1990 and 6-8 July 1990. Seed was collected from one locality on 3 September 1990. Labwork was conducted in July and September.

METHODS

Determination of species identity followed Hitchcock *et al* 1959 and Dorn 1988. Many populations collected had been previously diagnosed. Meiotic material from five to ten individuals per population was collected and fixed in the field in Farmer's solution (3:1, 95% ethanol:glacial acetic acid). Buds were transferred after 24 hours to 70% ethanol. Anthers dissected from preserved buds were squashed in 45% aceto-orcein for examination under phase-contrast microscopy. Mitotic material was obtained from germinated seed of one population. Root tips for mitotic squashes were pretreated in 8-hydroxyquinoline for 4 hours. Root tips were then placed in orcein-Hcl (9:1) and gently heated several times. After hydrolysis, root tips were squashed in 45% aceto-orcein for examination under phase-contrast microscopy.

RESULTS

Counts were obtained from six of the thirteen *Cirsium longistylum* designated in the contract. Both seed and meiotic material was collected from a reference population of *Cirsium hookerianum* in the Roger's Pass vicinity, but a count was not obtained. Table 1 presents counts obtained by the author, as well as counts from the literature of species thought to be involved in hybridization with *Cirsium longistylum*. Citations of all populations collected are found in the appendix.

TABLE 1
Chromosome numbers of *Cirsium longistylum* and related species

Cirsium longistylum Collection nr	Count	Location	Source	Hybrid status
325	2n=34	Jumping Creek CG	author	pure
328*	2n=34	Bender Creek Trail	author	hybrid
331*	2n=34	Servoss Mountain	author	hybrid?
332	2n=34	Paine Gulch	author	hybrid
333	2n=34	Belt Creek	author	hybrid
336**	2n=34	Kings Hill	author	hybrid?
Cirsium foliosum	2n=34		ref 4	
Cirsium hookerianum	2n=34		ref 5	
Cirsium polyphyllum (=*C. tweedyi*)	2n=34		ref 5	

* Counts for more than one individual were obtained.
** Mitotic count, seed collected by L. Schassberger (#3).

LITERATURE CITED

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2. Hitchcock, C.L., Cronquist, A. and M. Ownbey. 1969. Vascular Plants of Pacific Northwest, Part 1. University of Washington Press, Seattle. 914 pp.
3. Moore, R.J. and C. Frankton. 1963a. Cytotaxonomic notes on some *Cirsium* species of the western United States. Can. J. Botany 41:1553–1567.
4. Moore, R.J. and C. Frankton. 1963b. A clarification of *Cirsium foliosum* and *Cirsium drummondii*. Can. J. Botany 42:451–461.
5. Moore, R.J. and C. Frankton. 1965. Cytotaxonomy of *Cirsium hookerianum* and related species. Can. J. Botany 43:597–613.

APPENDIX

Populations collected:

Cirsium hookerianum Nutt. Montana: Lewis and Clark Co., MT 279, a few km E of junction with MT 200. In grassy meadow with lodgepole and aspen, 1 July 1990, *S. Mathews 317* (MONT), MT 279, NW side of Flesher Pass at wide bend where road turns west. With many forbs along creek bank with Douglas-fir, 1 July 1990, *S. Mathews 318* (MONT).

Cirsium longistylum Moore & Frankton. Montana: Meagher Co., Thompson Gulch/Gipsy Creek [EOCODE: PDAST2E1P0.016], 26 km W of White Sulphur Springs on FS road 139, in both dry and moist meadows at edge of Douglas-fir stands, 6 July 1990, *S. Mathews 320* (MONT), Lake Sutherlin [EOCODE: PDASTE1P0.006], 19.2 km E of White Sulphur Springs on US 212 at east end Lake Sutherlin, along highway in swales and roadcuts, 6 July 1990, *S. Mathews 321* (MONT), Spur Park [EOCODE: PDAST2E1P0.012], Little Belt Mts., near Spur Park, along Lewis & Clark NF road 6464, ca 3.5 air mi E of US 89, whitebark pine and subalpine fir parkland, 6 July 1990, *S. Mathews 322* (MONT), South Fork Deadman Creek [EOCODE: DAST2E1P0.011], Little Belt Mts., along Lewis & Clark NF road 837, ca 2 air mi from US 89, 6 July 1990, *S. Mathews 323* (MONT), Little Belt Mts., Jumping Creek Campground [EOCODE: PDAST2E1P0.007], US 89, 28 km S of Neihart, 6 & 8 July 1990, *S. Mathews 325* (MONT), Cascade Co., Neihart [EOCODE: PDAST2E1P0.008], ca 1.6 km W of US 89, at confluence of Harley Creek with Graveyard Gulch, 7 July 1990, *S. Mathews 326* (MONT), Little Belt Mts., FS road 120 E of Monarch, just E of Sawmill Creek road, on both sides of road in openings among aspen groves, 7 July 1990, *S. Mathews 327* (MONT), Bender Creek Trail [EOCODE: PDAST2E1P0.005], ca 14.5 km E of Monarch, junction of trail 318 and FS road 120, 7 July 1990, *S. Mathews 328* (MONT), Servoss Mountain [EOCODE: PDAST2E1P0.015], on FS road 613, divide between Henn Gulch and Ruby Creek, at edge of meadow in vicinity of trailhead 736, about 10 plants under Douglas-fir and lodgepole, 7 July 1990, *S. Mathews 331* (MONT), Paine Gulch [EOCODE: PDAST2E1P0.014], ca 1.5-2.2 mi from confluence with Belt Creek, 7 July 1990, *S. Mathews 332* (MONT), Belt Creek [EOCODE: PDAST2E1P0.013], adjacent to road ca 2 km each direction from Many Pines CG, plants occur on both sides of Belt Creek, 7 & 8 July 1990, *S. Mathews 333* (MONT), N side of Kings Hill pass, in wet meadow and willow fen at upper Belt Creek, 7 July 1990, *S. Mathews 334* (MONT), Top of Kings Hill [EOCODE PDAST2E1P0.010], 0.4 air mi SSE of summit Kings Hill, 8 July 1990, *S. Mathews 335* (MONT), Meagher Co., Kings Hill [EOCODE: PDAST2E1P0.002], at entrance to Showdown ski area, 8 July 1990, *S. Mathews 336* (MONT).

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